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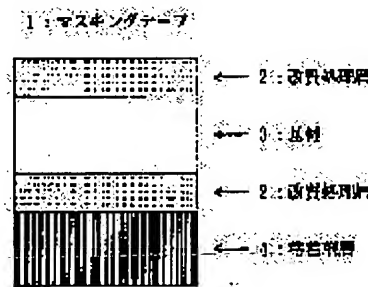
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(54) MASKING TAPE BASE FOR COATING AND MASKING TAPE FOR COATING

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a masking tape base and a masking tape for coating having excellent followability, giving a clear dividing edge line and remaining little residual adhesive.

SOLUTION: Both surfaces of a polyolefin resin film having an elastic modulus of 20-50 kgf/mm² are modified and coated with a tacky adhesive layer 4 composed of a thermoplastic saturated block polymer, a thermoplastic unsaturated block polymer and a tackifier or a tacky adhesive layer 4 composed of a cross-linkable acrylic resin.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] In case this invention removes a tape after it bakes it after spray painting, such as a car and an automobile, and it hardens a coating about the masking tape for paint, it relates to the masking tape for paint which is easy to exfoliate, and has it, and beautiful sacrifice Rhine is formed, and does not have contamination to a painted surface-ed, and was excellent in attachment workability.

[0002]

[Description of the Prior Art] A function, the combination of colors various from the field of a design, and a design are given to the shell plate and bumper of cars, such as an automobile, a bus, and an electric car. In order to protect a coating division of a color and the part which does not have to carry out paint at this time, the paint masking tape is used.

[0003] exfoliation is [good / the lamination workability to the curved-surface section with the complicated configuration of the painted body / as engine performance required of the masking tape for paint, that the precision of sacrifice Rhine after paint printing is good, that the adhesion on a coating and the tooth back of a masking tape is good, and] easy (detachability in the time of low temperature and an elevated temperature) etc. -- it asks.

[0004] As a base material of the masking tape for paint, crepe paper, polyester film, the elasticity vinyl chloride film, the polyolefin resin film, etc. are used. Moreover, a metallic oxide, a tackifier, a polyisobutylene, a zinc oxide, the constituent that consists of a thermal reaction nature phenol resin system are well-known, using as a principal component as a binder the thing which added the metallic oxide, the tackifier, and the **** accelerator or natural rubber, and a styrene-butadiene copolymer by using natural rubber as a principal component.

[0005] --

[Problem(s) to be Solved by the Invention] However, there are the following problems in these base materials. for example, the case of crepe paper -- quality of paper -- the impregnating resin currently used for amelioration begins to permeate a painted surface-ed under the printing conditions of a coating, or lacks in the flattery nature to a complicated curved surface, and sacrifice Rhine does not have it, either. [good] Polyester film is inferior in curved-surface flattery nature, and a use part is limited. Although the elasticity vinyl chloride is excellent as a base material with which the above-mentioned fault was improved, when the temperature at the time of exfoliating is as low as 5 degrees C - 10 degrees C after spreading and printing, a base material will fracture a coating, or a fragment will disperse, and it will soil the painted body. Moreover, a polyolefin resin film has the bad adhesion of a coating, a coating is not omitted or sacrifice Rhine does not come out of it vividly.

[0006] On the other hand, as a binder, since natural rubber consists of subjects, the above-mentioned well-known constituent is insufficient of the endurance over heat. Therefore, the lamination section after printing pollutes, or the stability of a product is not enough, either and has been a problem by the painting process bad [the adhesion workability in winter, and the detachability of the tape after printing].

[0007] This invention solves the above-mentioned technical problem, and it excels in flattery nature, and sacrifice Rhine is clear and it aims at offering the base material for paint masking tapes and a paint masking tape without the paste remainder.

[0008]

[Means for Solving the Problem] In order to solve said technical problem, as a result of inquiring wholeheartedly, this invention persons perform reforming processing to a special polyolefin resin film, and came to complete this invention by the configuration which comes to combine a special binder.

[0009] That is, for this invention, an elastic modulus is 2 20 to 50 kgf/mm. The paint masking tape characterized by having carried out double-sided reforming processing of the polyolefin resin film of the range, and preparing the binder layer which consists of thermoplastic partial saturation block polymer, thermoplastic saturation block polymer, and a tackifier, or a bridge formation mold acrylic binder layer on this film that carried out reforming processing is offered.

[0010]

[Embodiment of the Invention] Hereafter, the gestalt of operation of the paint masking tape concerning this invention is explained to a detail.

[0011] The base material film used for this invention consists of flexible polyolefine system resin. Although the block copolymer of polypropylene (PP) and polyethylene (PE) or the random copolymer of PP and PE can be used as flexible polyolefine system resin, especially the block copolymer of PP and PE can use it preferably.

[0012] In order to perform membrane formation-ization stably, in case it film-izes, various kinds of compounding agents are added by the flexible polyolefin resin film. For example, there are an anti-oxidant, a slipping agent, lubricant, an anti block agent, etc. These compounding agents may often do a bad influence, when using as a base material for paint masking. For example, a compounding agent blooms on a film front face by the passage of time, and it is not desirable as a base material for paint masking. Then, if it is made the polyolefin resin film except the slipping agent of an organic system, and lubricant, it can be used preferably.

[0013] Moreover, in order are flexible and to make flattery nature with a painted surface good, the elastic modulus of a polyolefin resin film is 2 15 to 55 kgf/mm. The thing of the range is desirable and it is 2 20 to 50 kgf/mm. The range can use it still more preferably. The elastic modulus of a polyolefin resin film is 2 15 kgf(s)/mm. If it does not reach, it is too soft, and attachment workability falls, and it is 2 55 kgf/mm. If it exceeds, flattery nature will fall.

[0014] In addition, it starts in width-of-face [of 10mm] x die length of 150mm of a film, and measurement of an elastic modulus is JIS. C Based on 2330, it measures in speed-of-testing 300 mm/min.

[0015] The thickness of a polyolefin resin film has the desirable range of 30-micrometers - 120 micrometers, and the thickness which is 38-100 micrometers can use it still more preferably. If it will be too soft, and the range of the above-mentioned elastic modulus will not be arrived at, but handling will become difficult, if it does not amount to 30 micrometers, and it exceeds 120 micrometers, the above-mentioned elastic modulus will be exceeded and flattery nature will fall.

[0016] The polyolefin resin film has the property which is hard to paste up for low energy. For this reason, various reforming can be given, in order to reform the front face of a polyolefin resin film and to make it easy adhesiveness. Well-known means, such as preparing corona treatment and a reforming resin layer (the so-called priming), can be used. A reforming resin layer is prepared in one side or both sides of a polyolefin resin film which carried out corona treatment. In case the purpose exfoliates after printing by improving adhesion with coating resin, when bonding strength with the polyolefin resin film which prevented the fall by scattering prevention of a coating, improvement in the precision of sacrifice Rhine, and the passage of time of the corona treatment effectiveness, and carried out corona treatment to the binder is weak, it is effective as an operation of a primer.

[0017] As reforming resin, the urethane resin of a polyester system or a polyether system, acrylic resin, polyester resin, etc. can be used. As for a reforming resin layer, because of blocking prevention, it is desirable that it is non-adhesiveness under product preservation conditions.

[0018] The thickness of a reforming resin layer has desirable 20 micrometers or less to one field of a polyolefin resin film, and its 15 micrometers or less are still more desirable.

[0019] A means well-known as an approach of applying a reforming resin layer to a polyolefin resin film is used. For example, it can apply by the gravure roll coater, a reverse roll coater, etc.

[0020] Moreover, by coloring it a reforming resin layer with a pigment, a color, a bulking agent, etc., the boundary region of adherend and a masking tape can be identified now, and it can consider as a more effective masking tape.

[0021] The front face of the polyolefin resin film which performed these reforming processing is JIS. It is desirable to use the solution which has the surface tension of 35 dyn/cm specified to K6768, and to make the value of $\gamma \cos A$ (it considers as extended tension) into 25 or more dyn/cm in quest of the contact angle A. The range of 25 - 35 dyn/cm is still more desirable. The adhesion force over a coating is improved by such processing, and it can be preferably used as a base material for masking tapes for paint. When extended tension is lower than the above-mentioned value, a coating dissociates from the tooth back of a masking tape at exfoliation of the masking tape after printing, it separates, and the painted body is polluted.

[0022] In addition, the measuring method of extended tension is JIS. K It asked for extended tension by the following formula using the surface tension (mixed liquor of 35 dyn/cm, formaldehyde 35 volume %, and ethylene-glycol-monoethyl-ether 65 capacity %) of the standard solution specified to 6768.

[Several 1] $W = \gamma L \cos A$ (the room temperature of 23[±]2 degrees C, 65[±]5% of humidity)

γ : 35 dyn/cm [0023] A binder layer is prepared on the polyolefin resin film which performed the above-mentioned reforming processing. As this binder constituent, a tackifier and other various bulking agents can be used by using the synthetic rubber of thermoplastic saturation block polymer and thermoplastic partial saturation block polymer as a principal component.

[0024] As thermoplastic saturation block polymer, a general formula and the thing expressed with A-B-A (however, A shows a styrene polymer block and B shows a polymer block with ethylene and a butylene) can be used. For example, G1657 (A component is 13% and B component is 87% of straight chain mold), G1652 (A component is 29% and B component is 71% of straight chain mold), G1726 (A component is 30% and B component is the straight chain mold of the 70 sections) (all are shell chemistry company make), etc. are mentioned. From a viewpoint of a low temperature performance, 40% or less has the desirable component of A, and 30% or less of the rate of a compounding ratio of A-B can be used still more preferably, when thermoplastic saturation block polymer is set to 100. Although thermoplastic saturation block polymer has bad compatibility with a tackifier, compatibility can improve a low temperature performance well by blending with the thermoplastic partial saturation block polymer described below.

[0025] As thermoplastic partial saturation block polymer, a general formula and the thing expressed with A-C-A (however, A shows a styrene polymer block and C shows the polymer block of an isoprene) can be used. For example, TR1107 (A component is 14% and C component is 86% of straight chain mold), D1117 (A component is 17% and C component is 83% of straight chain mold), D1320 (A component is 10% and C component is 90% of straight chain mold) (all are shell chemistry company make), etc. are mentioned. As loadings of these thermoplasticity partial saturation block polymer, to the thermoplastic saturation block polymer 100 weight section, the range of the 0.5 - 30.0 weight section is desirable, and the range of the 1.0 - 25.0 weight section can use it still more preferably from a heat-resistant point.

[0026] As a tackifier, it dissolves with the above-mentioned block polymer, there is no contamination after printing to adhesiveness, an adhesive property, and an adherend, and resin with easy detachability can be used. As such a tackifier, alicycle group hydrocarbon resin, aliphatic hydrocarbon resin, hydrogenation terpene resin, etc. are mentioned. As alicycle group hydrocarbon resin, P-70, P-80, P-90, P-100, P115 (all are the Arakawa chemistry company make), S KORETTSU 5300 (product made from toe NEKKUSU), etc. can be used, for example. As aliphatic hydrocarbon resin, S KORETTSU 1401 (product made from toe NEKKUSU) etc. can be used. As hydrogenation terpene resin, chestnut ARON P85 (Yasuhara Chemical make) etc. can be used. As loadings of a tackifier, to the total amount (rubber

component) 100 weight section of thermoplastic saturation block polymer and thermoplastic partial saturation block polymer, the range of the 70 - 200 weight section is desirable, and the 80 - 150 weight section can use it still more preferably.

[0027] In addition, in order to improve the endurance over reforming of a binder, especially heat, the HINDA phenol 1010, for example, IRUGA NOx, IRUGA NOx 1076, IRUGA NOx 1035 (all are the Ciba-Geigy make), etc. are mentioned as an antioxidant. As loadings of an antioxidant, to the rubber component 100 weight section, below 3 weight sections are desirable and below 2 weight sections can use it still more preferably.

[0028] Moreover, tinuvin 120 (all are the Ciba-Geigy make) is mentioned as a benzothoria sol system as an ultraviolet-rays inhibitor as Tinuvin P, tinuvin 571, tinuvin 1130, tinuvin 327, and a benzophenone system. Since endurance is improved as loadings of an ultraviolet-rays inhibitor, to the rubber component 100 weight section, below 3 weight sections are desirable and below 1 weight section can use it still more preferably.

[0029] Furthermore, various fillers etc. can be blended in order to improve the adhesion of a binder, a tuck, etc. The thing of an organic system and an inorganic system can be used as an effective filler. as for example, a polyolefine system particle -- as EA209, LE1080 (all are the Sumitomo Seika Chemicals Co., Ltd. make), and silicon oxide -- Aerosil R972, R974, R200, R202, R300, and R380 (all are the products made from Japanese Aerosil), titanium oxide, and aluminum hydroxide, Carbon black etc. can be used. As loadings of a filler, below 15 weight sections can use it preferably to the rubber component 100 weight section. Moreover, since the boundary part of a tape and an adherend becomes clear and adhesion workability becomes easy by coloring a binder when the polyolefin resin film which carried out easily-adhesive processing is transparent, a coloring agent can also be blended.

[0030] Moreover, the masking tape for heat-resistant paint can be obtained also by preparing a bridge formation mold acrylic binder layer to the polyolefin resin film which this invention reformed. as an acrylic binder -- the bridge formation between polymers (a carboxyl group and an epoxy group --) To the thing and the acrylic binder which are twisted to the condensation, methylol radical, and hydroxyl group of methylol radicals, a carboxyl group, The polymer which copolymerized the monomer which has active hydrogen, such as a hydroxyl group, is used. The poly isocyanate, an aziridinyl radical, etherification melamine resin, an organometallic compound, For example, hexa methylenebis ethylene urea, CHITANIUMUJI Iso PUROPO oxy-acetylacetate, It can be used as a paint masking tape by carrying out the laminating of the binder in which the structure of cross linkage was made to form by butyl ether-ized melamine resin to the polyolefin resin film which this invention reformed. Although the amount of the cross linking agent for making the fitness structure of cross linkage form in an acrylic polymer by the external cross linking agent changes with classes of cross linking agent, its 0.01 - 10 weight-section-is-desirable-to-the-acrylic-polymer pitch 100 weight section, and its 0.05 - 7.0 weight section is still more desirable.

[0031] It will bake, if there are few amounts of cross linking agents, and at the temperature in conditions, a binder flows into the painted body, adhesive strength goes up, detachability worsens, contraction of a film takes place, a binder carries out ** arrival or the precision of sacrifice Rhine falls [**** / that a base material is torn] to an adhesion edge. If there are too many amounts of cross linking agents, an adhesive property and a tuck will fall, and the fit nature to the painted body and the flattery nature to a complicated field will worsen, therefore the solvent of a coating will permeate, and sacrifice Rhine precision will fall.

[0032] Moreover, the painted body becomes possible [obtaining the masking tape for polypropylene resin] by using chlorination polypropylene resin for the above-mentioned bridge formation mold acrylic binder as an improver of adhesive strength at paint of the polar low cast of polypropylene resin etc. What has functional groups, such as a carbonyl group and a hydroxyl group, as chlorination polypropylene resin is desirable. As such chlorination polypropylene resin, S206, S214 (all are the Nippon Paper Industries Co., Ltd. make), etc. are mentioned. As loadings of chlorination polypropylene resin, 0.1 - 15 weight section is desirable to the pitch 100 weight section of acrylic resin which has a functional group, and the range of 0.2 - 10 weight section is still more desirable.

[0033] In order to make the binder constituent layer stated above form on the flexible polyolefin resin film of this invention, it can attain by the well-known approach. It can attain by applying the binder of this invention directly on a polyolefin resin film, or imprinting on a film after spreading / desiccation on an exfoliation film or a releasing paper. The thickness of the binder layer made to form on a film has 8 micrometers - desirable 70 micrometers, and the range which is 10 micrometers - 60 micrometers can use it still more preferably. When the thickness of a binder layer is thinner than this, a tuck, an adhesive property, and fit nature are inferior, therefore adhesion workability is bad, and the precision of sacrifice Rhine falls. If the thickness of a binder layer is thicker than this, a coating infiltrates into a binder and it abandons, and Rhine will fall, or adhesive strength will become high too much and detachability will fall. Moreover, by this invention, the purpose can be attained by preparing the backing agent layer which was excellent in coating adhesion force in the case of the gestalt twisted around a masking tape tooth back without preparing an exfoliation film. For example, the urethane which has a long-chain alkyl group can use it preferably.

[0034]

[Example] Hereafter, an example explains this invention concretely.

[0035] The physical property of the polyolefin resin film with which the sample was presented this time [examples 1-8 and example 1 of comparison - 3] is shown in Table 1. The conditions which performed reforming processing to the polyolefin resin film of Table 1 are shown in Table 2. Applied to the sample of Table 2 the binder made to dissolve the combination constituent shown in Table 3 in the partially aromatic solvent (1/4 (weight ratio)) of n-hexane / toluene so that solid content may become 34 % of the weight, it was made to dry for 3 minutes in the circuit system heat oven set as 150 degrees C, and the binder layer was formed. At 50 more degrees C, postcure was carried out, and the trial was presented for 20 hours, after stabilizing the bonding strength of the reformed polyolefin resin film and a binder.

[0036]

[Table 1]

基材の拡張張力と弾性率

基 材		PP-PEブロック 共重合体	PP-PEランダム 共重合体	PE
基材厚み (μm)		70	38	60
改質樹脂層厚み		7	4	6
拡張 張力 *1	未処理面	21.5	21.2	22.0
	コロナ処理理	31.9	30.8	32.4
	改質樹脂層面	32.4	32.4	32.4
弾性率 *2	未 処 理	MD*3	45.2	22.5
		TD*4	41.9	23.3
	改 質 層	MD	39.8	20.1
		TD	30.4	22.4

*1: 単位は dyn/cm

*2: 単位は kgf/mm²

*3: フィルムの長さ方向

*4: フィルムの幅方向

[0037]

[Table 2]

基材の表面処理

		基 材		コロナ処理	改質樹脂層		粘着剤積層面	
		組 成	厚み μm		両 面	片 面	コロナ処理面	改質樹脂面
基 材 番 号	F1	PP-PEブロック	70	両面処理	-	-	○	-
	F2	PP-PEブロック	70	両面処理	-	○	○	-
	F3	PP-PEランダム	38	両面処理	-	○	○	-
	F4	PE	60	両面処理	-	○	○	-
	F5	PP-PEブロック	70	両面処理	○	-	-	○
	F6	PP-PEブロック	70	片面処理	-	○ $\times 5$	-	○

○: コロナ処理面に改質樹脂を塗布

[0038]

[Table 3]

合成ゴム系粘着剤の配合例

	実 施 例								比 較 例		
	1	2	3	4	5	6	7	8	1	2	3
G1657	90	90	81	90	90	90	99	77	100	60	90
TR1107	10	-	9	-	-	-	-	-	-	-	10
D1320	-	10	-	10	10	10	1	23	-	40	-
FG1901	-	-	10	-	-	-	-	-	-	-	-
ゴム成分	100	100	100	100	100	100	100	100	100	100	100
P70	36	40	36	36	36	137	50	40	45	40	36
P90	14	15	14	14	14	14	-	14	-	14	14
P100	35	39	35	35	35	-	-	-	-	-	35
P115	-	-	-	-	-	-	40	40	40	40	-
P85	-	-	-	15	-	-	-	-	-	-	-
5300	-	-	-	-	15	-	-	-	-	-	-
酸化チタン	-	10	-	-	-	-	-	-	-	-	-
1010	1	1	1	1	1	1	1	1	1	1	1
1130	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LE1080	2.3	3.1	2.2	2.0	2.0	2.0	1.0	1.5	1.0	1.5	2.3

注) 単位は重量部

上記配合組成物をヘキサン/トルエン=1/3の混合溶剤中に溶解し、固形分34%に調製した。

[0039] [evaluation] -- as an initial property, about holding power [in / masking tape / which was obtained / 1 (Unit kgf / 25mm, and the following -- the same) or 40 degrees C of adhesive strength] (mm), adhesive strength 2 and the adhesive strength 3 after baking, stain resistance, ** arrival, detachability 1, abandonment nature, coating adhesion, adhesive strength 4, detachability 2, detachability 3, and attachment workability, as shown below, it examined and evaluated.

[0040] adhesive strength 1 JIS Z the field which ground the stainless plate with the waterproof abrasive paper of #280 by the trial based on 0237 -- it tore off after 1-hour neglect in the ambient atmosphere of 23 degree-Cx60%RH after 1 round trip, lamination and a 2kg rubber roller tore off the binder side at the speed of 300 mm/min in the direction 180 degrees with the tension tester (tensilon (cage en tech company make)), and the force required for tearing off was measured.

[0041] It replaced with grinding a stainless plate with the waterproof abrasive paper of adhesive strength 2#280, the melamine / acrylic coating was applied, and it was presupposed that it is the same as that of adhesive strength 1 except having used the paint steel plate carried out by the ability being burned for 30 minutes in the circuit system heat oven set as 150 degrees C.

[0042] The adhesive strength after the test piece used by adhesive strength 3 adhesive strength 1 is able to be burned for 30 minutes at 140 degrees C is shown.

[0043] The adhesive strength after the test piece used by adhesive strength 4 adhesive strength 2 is able to be burned for 30 minutes at 140 more degrees C is shown.

[0044] The holding power in 40 degrees C and a tuck are said JIS. Z It measured according to 0237.

[0045] When it tore off from the test piece used by the stain resistance aforementioned adhesive strength 4, that with which the test piece side is not polluted was made into O, and what is polluted was made into x.

[0046] When it tore off from the test piece used by the ** arrival aforementioned adhesive strength 4, that in which the binder does not remain was made into O, and what remains was made into x.

[0047] When the test piece used by detachability 1, detachability 2, and the detachability 3 aforementioned adhesive strength 4 was torn off in each temperature (the time of 2 or 10 degrees C of detachability was made [the time of 23 degrees C] into detachability 3 for the time of 1 or 50 degrees C of detachability.), what was able to be removed easily was made into O and what was not able to be removed easily was made into x.

[0048] When it tore off from the test piece used by the abandonment nature aforementioned adhesive strength 4, the boundary region of the paint section and the non-painting section made the clear thing O, and made the not clear thing x.

[0049] When it tore off from the test piece used by the coating adhesion aforementioned adhesive strength 4, what had scattering of O and a coating in the thing without scattering of a coating was made into x.

[0050] The 2mm diameter of a rod is used, the test piece used by the attachment workability aforementioned adhesive strength 4 is bent at 180 degrees, the front face is made into clarification by isopropyl alcohol, and it is made the test piece which sticks a trial tape. A trial tape and a test piece are maintained at a stable state under a 10-degree C ambient atmosphere, from the flat part of a test piece, a trial tape is stuck, it involves in the test piece bent 180 degrees 5mm, and it is pasted. The thing in which attachment by 10 degrees C is possible was made into O, and the impossible thing was made into x. An evaluation result is shown in Table 4.

[0051]

[Table 4]

合成ゴム系粘着剤による実施例の各特性

		実 施 例								比 較 例		
		1	2	3	4	5	6	7	8	1	2	3
基材番号		F3	F1	F2	F4	F5	F2	F2	F2	F2	F2	F6
初期 特性	接着力1	0.63	1.18	0.42	0.78	0.84	2.92	1.53	1.44	0.25	1.50	1.20
	保持力5	0	0	0	0	0	0	0	0	0	0	0
	接着力2	0.80	0.95	0.90	0.80	0.85	2.15	1.40	1.00	2.10	1.00	0.90
焼 付 処 理 後 の 特 性	接着力3	0.70	1.10	2.90	1.10	0.70	1.75	1.50	1.25	1.40	1.60	1.00
	汚染性	無し	無し	無し	無し	無し	無し	無し	無し	無し	有り	有り
	転着	無し	無し	無し	無し	無し	無し	無し	無し	無し	有り	有り
	剥離性1	○	○	○	○	○	○	○	○	○	○	○
	見切り性	○	○	○	○	○	○	○	○	×	○	○
	密着性	○	○	○	○	○	○	○	○	○	○	×
	接着力4	1.00	0.78	0.70	1.00	1.20	1.20	1.30	1.05	1.35	1.40	0.80
	剥離性2	○	○	○	○	○	○	○	○	○	○	×
	剥離性3	○	○	○	○	○	○	○	○	○	×	×
	作業性6	○	○	○	○	○	○	○	○	×	○	○

保持力5: 40℃での保持力

作業性6: 貼付け時の作業性

[0052] As shown in Table 4, the masking tape of examples 1-8 was good also in the initial property and the property after baking.

[0053] Since the example 1 of a comparison did not have combination of thermoplastic partial saturation block polymer, attachment workability and its abandonment nature were bad. Since the example 2 of a comparison had many loadings of thermoplastic partial saturation block polymer, its detachability in low temperature was bad. Since the corona treatment and the reforming resin layer which are the surface treatment of a polyolefin resin film were one side, the example 3 of a comparison had the bad adhesion of a coating.

[0054] Next, the example at the time of carrying out the laminating of the acrylic resin system binder to the polyolefin resin film of this invention is explained below.

[0055] As an acrylic resin system binder, the example 9 used n-butyl acrylate as the principal component, blended [butyl-ether-ized-melamine resin (50% of pitches)] the 0.2 weight section with the solution (30% of pitches) 100 weight section of the polymer which contains a carboxyl group and an epoxy group as a functional group for the 1.8 weight section and a G nonyl naphthalene sulfonic acid (ISO-butanol 55% solution), and created the acrylic resin system binder. According to said evaluation approach, sample creation of this solution was carried out in the corona treatment side of the film number F2 of Table 1.

[0056] The example 10 blended 214 (Nippon Paper Industries Co., Ltd. make) which is Chlorination PP with the binder constituent used in the example 9, and created the acrylic resin system binder. According to said evaluation approach, sample creation of this solution was carried out at the reforming resin stratification plane of the film number F2 of Table 1.

[0057] The example 4 of a comparison formed the binder used in the example 9 on the plasticized-polyvinyl-chloride resin film (thickness of 90 micrometers), and carried out sample creation according to said evaluation approach. The example 5 of a comparison formed the binder used in the example 10 on the plasticized-polyvinyl-chloride resin film (thickness of 90 micrometers), and carried out sample creation according to said evaluation approach.

[0058] The example 6 of a comparison formed the binder which blended Nocceler (Ochi new company

make) as 76 weight sections and a tackifier, and blended toluene with 2 weight sections for natural rubber (20% solution) as the rosin ester (Arakawa chemistry company make) 12 weight section, the alpha pinene polymer (Yasuhara Chemical make) 3 weight section, and an antioxidant on the plasticized-polyvinyl-chloride resin film (thickness of 90 micrometers), and carried out sample creation according to said evaluation approach.

[0059] In addition to said evaluation approach, adhesive strength 5 used the test piece as PP shaping plate, made the front face clarification by isopropyl alcohol, and presented the trial with it. The trial was presented with it after adhesive strength 6 processed the test piece of adhesive strength 5 for 30 minutes at 90 degrees C.

[0060] The result of examples 9 and 10 and the examples 4-6 of a comparison is shown in Table 5.

[0061]

[Table 5]

アクリル樹脂系粘着剤による実施例の各特性

		実 施 例		比 較 例		
		9	10	4	5	6
	基材番号	F2	F2	PVC	PVC	PVC
初	接着力1	0.60	0.50	0.60	0.40	1.00
期	保持力*6	0	0	0	0	落下
特	接着力2	0.50	—	0.55	—	1.55
性	接着力5	—	0.60	—	0.50	—
施 付 処 理 後 の 特 性	接着力3	0.80	—	1.00	—	1.55
	接着力4	0.90	—	1.20	—	—
	接着力6	—	0.70	—	1.00	2.00
	汚染性	○	○	○	○	×
	転着	○	○	○	○	○
	見切り性	○	○	○	○	○
	密着性	○	○	○	○	○
	剥離性1	○	○	○	○	○
	剥離性2	○	○	○	○	○
	剥離性3	○	○	×	×	×
	作業性*7	○	○	△	△	×

保持力*6: 40℃での保持力 作業性*7: 貼付け時の作業性

[0062] Since the examples 4, 5, and 6 of a comparison used the plasticized-polyvinyl-chloride resin film, the attachment workability at the time of low temperature and its detachability were worse than the result of Table 5. Furthermore, contamination was checked for the binder with which the example 6 of a comparison used natural rubber as the principal component.

[0063]

[Effect of the Invention] As stated above, an elastic modulus is 220 to 50 kgf/mm. By having carried out double-sided easily-adhesive processing of the polyolefin resin film of the range, and having prepared the binder layer which consists of thermoplastic saturation block polymer, thermoplastic partial saturation block polymer, and a tackifier on the film which carried out easily-adhesive processing, or the bridge formation mold acrylic binder layer, it excels in flattery nature and it is effective in sacrifice Rhine being clear and the base material for paint masking tapes without the paste remainder and a paint masking tape being obtained.

[Translation done.]